Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

# Analysis Report

ANALYTICAL RESULTS

Prepared for:

Langan
500 Hyde Park
Doylestown PA 18901

215-348-7101

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

## SAMPLE GROUP

The sample group for this submittal is 942526. Samples arrived at the laboratory on Friday, May 06, 2005. The PO# for this group is SUNOCO PHILLY REFINER.

| Client Description | Lancaster Labs Number |
|---|---|
| S102-050605 Grab Water Sample | 4519602 |
| S59D-050605 Grab Water Sample | 4519603 |
| MW1-050605 Grab Water Sample | 4519604 |
| MW4-050605 Grab Water Sample | 4519605 |

| | | |
|---|---|---|
| ELECTRONIC COPY TO | SUN: Aquaterra Tech. | Attn: Brad Spancake |
| 1 COPY TO | LL | Attn: Angela Miller |
| 1 COPY TO | Langan | Attn: Jason Hanna |
| ELECTRONIC COPY TO | Langan | Attn: Dennis Webster |

Lancaster Laboratories

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# Analysis Report

Questions? Contact your Client Services Representative
Angela M Miller at (717) 656-2300.

Respectfully Submitted,

Michele J. Smith

Michele J. Smith
Group Leader

Lancaster Laboratories

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# Analysis Report



**Lancaster Laboratories Sample No. WW 4519602**

**S102-050605 Grab Water Sample**
**SUN: Philadelphia Refinery AOI-4**

Collected:05/06/2005 10:00 by MBS

Account Number: 10132

Submitted: 05/06/2005 18:40
Reported: 05/17/2005 at 16:24
Discard: 06/17/2005

Langan
500 Hyde Park
Doylestown PA 18901

S-102

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Limit of Quantitation* | As Received Method Detection Limit | Units | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 06035 | Lead | 7439-92-1 | < 0.0010 | 0.0010 | 0.00021 | mg/l | 1 |
| 07879 | EDB in Wastewater | | | | | | |
| 01087 | Ethylene dibromide | 106-93-4 | < 0.028 | 0.028 | 0.0094 | ug/l | 1 |
| 07805 | PAHs in Water by GC/MS | | | | | | |
| 03947 | Naphthalene | 91-20-3 | < 10. | 10. | 1. | ug/l | 1 |
| 03956 | Fluorene | 86-73-7 | < 10. | 10. | 1. | ug/l | 1 |
| 03963 | Phenanthrene | 85-01-8 | < 10. | 10. | 1. | ug/l | 1 |
| 03967 | Pyrene | 129-00-0 | < 10. | 10. | 1. | ug/l | 1 |
| 03971 | Chrysene | 218-01-9 | < 10. | 10. | 1. | ug/l | 1 |
| 02302 | UST-Waters by 8260B | | | | | | |
| 02010 | Methyl Tertiary Butyl Ether | 1634-04-4 | < 5. | 5. | 0.5 | ug/l | 1 |
| 05401 | Benzene | 71-43-2 | < 5. | 5. | 0.5 | ug/l | 1 |
| 05402 | 1,2-Dichloroethane | 107-06-2 | < 5. | 5. | 1. | ug/l | 1 |
| 05407 | Toluene | 108-88-3 | < 5. | 5. | 0.7 | ug/l | 1 |
| 05415 | Ethylbenzene | 100-41-4 | < 5. | 5. | 0.8 | ug/l | 1 |
| 05420 | Isopropylbenzene | 98-82-8 | < 5. | 5. | 1. | ug/l | 1 |
| 06310 | Xylene (Total) | 1330-20-7 | < 5. | 5. | 0.8 | ug/l | 1 |

Commonwealth of Pennsylvania Lab Certification No. 36-037
This sample was filtered in the lab for dissolved metals.
Trip blank vials were not received by the laboratory for this sample group.

## Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|
| 06035 | Lead | SW-846 6020 | 1 | 05/13/2005 00:41 | David K Beck | 1 |
| 07879 | EDB in Wastewater | SW-846 8011 | 1 | 05/10/2005 10:09 | James H Place | 1 |
| 07805 | PAHs in Water by GC/MS | SW-846 8270C | 1 | 05/10/2005 11:11 | Joseph M Gambler | 1 |
| 02302 | UST-Waters by 8260B | SW-846 8260B | 1 | 05/11/2005 11:03 | Andrea D Moore | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | 05/11/2005 11:03 | Andrea D Moore | n.a. |
| 06050 | ICP/MS SW-846 Water | SW-846 3010A Mod. | 1 | 05/10/2005 18:15 | James L Mertz | 1 |
| 07786 | EDB Extraction | SW-846 8011 | 1 | 05/09/2005 12:10 | Darin P Wagner | 1 |

*=This limit was used in the evaluation of the final result

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# Analysis Report



**Lancaster Laboratories Sample No. WW 4519602**

**S102-050605 Grab Water Sample**
**SUN: Philadelphia Refinery AOI-4**

Collected:05/06/2005 10:00 by MBS

Account Number: 10132

Submitted: 05/06/2005 18:40
Reported: 05/17/2005 at 16:24
Discard: 06/17/2005

Langan
500 Hyde Park
Doylestown PA 18901

S-102

| | | | | | | |
|---|---|---|---|---|---|---|
| 07807 | BNA Water Extraction | SW-846 3510C | 1 | 05/08/2005 10:00 | Joseph S Feister | 1 |

*=This limit was used in the evaluation of the final result

Lancaster Laboratories

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# Analysis Report



**Lancaster Laboratories Sample No. WW 4519603**

**S59D-050605 Grab Water Sample**
**SUN: Philadelphia Refinery AOI-4**

Collected:05/06/2005 10:30 by MBS

Account Number: 10132

Submitted: 05/06/2005 18:40
Reported: 05/17/2005 at 16:24
Discard: 06/17/2005

Langan
500 Hyde Park
Doylestown PA 18901

S-59D

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Limit of Quantitation* | As Received Method Detection Limit | Units | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 06035 | Lead | 7439-92-1 | < 0.0010 | 0.0010 | 0.00021 | mg/l | 1 |
| 07879 | EDB in Wastewater | | | | | | |
| 01087 | Ethylene dibromide | 106-93-4 | < 0.028 | 0.028 | 0.0093 | ug/l | 1 |
| 07805 | PAHs in Water by GC/MS | | | | | | |
| 03947 | Naphthalene | 91-20-3 | < 10. | 10. | 1. | ug/l | 1 |
| 03956 | Fluorene | 86-73-7 | < 10. | 10. | 1. | ug/l | 1 |
| 03963 | Phenanthrene | 85-01-8 | < 10. | 10. | 1. | ug/l | 1 |
| 03967 | Pyrene | 129-00-0 | < 10. | 10. | 1. | ug/l | 1 |
| 03971 | Chrysene | 218-01-9 | < 10. | 10. | 1. | ug/l | 1 |
| 02302 | UST-Waters by 8260B | | | | | | |
| 02010 | Methyl Tertiary Butyl Ether | 1634-04-4 | < 5. | 5. | 0.5 | ug/l | 1 |
| 05401 | Benzene | 71-43-2 | < 5. | 5. | 0.5 | ug/l | 1 |
| 05402 | 1,2-Dichloroethane | 107-06-2 | < 5. | 5. | 1. | ug/l | 1 |
| 05407 | Toluene | 108-88-3 | < 5. | 5. | 0.7 | ug/l | 1 |
| 05415 | Ethylbenzene | 100-41-4 | < 5. | 5. | 0.8 | ug/l | 1 |
| 05420 | Isopropylbenzene | 98-82-8 | < 5. | 5. | 1. | ug/l | 1 |
| 06310 | Xylene (Total) | 1330-20-7 | < 5. | 5. | 0.8 | ug/l | 1 |

Commonwealth of Pennsylvania Lab Certification No. 36-037
This sample was filtered in the lab for dissolved metals.
Trip blank vials were not received by the laboratory for this sample group.

## Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|
| 06035 | Lead | SW-846 6020 | 1 | 05/13/2005 00:45 | David K Beck | 1 |
| 07879 | EDB in Wastewater | SW-846 8011 | 1 | 05/10/2005 10:39 | James H Place | 1 |
| 07805 | PAHs in Water by GC/MS | SW-846 8270C | 1 | 05/10/2005 12:03 | Joseph M Gambler | 1 |
| 02302 | UST-Waters by 8260B | SW-846 8260B | 1 | 05/11/2005 11:27 | Andrea D Moore | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | 05/11/2005 11:27 | Andrea D Moore | n.a. |
| 06050 | ICP/MS SW-846 Water | SW-846 3010A Mod. | 1 | 05/10/2005 18:15 | James L Mertz | 1 |
| 07786 | EDB Extraction | SW-846 8011 | 1 | 05/09/2005 12:10 | Darin P Wagner | 1 |

*=This limit was used in the evaluation of the final result

**Lancaster Laboratories Sample No. WW 4519603**

**S59D-050605 Grab Water Sample**
**SUN: Philadelphia Refinery AOI-4**

Collected:05/06/2005 10:30 by MBS

Account Number: 10132

Submitted: 05/06/2005 18:40
Reported: 05/17/2005 at 16:24
Discard: 06/17/2005

Langan
500 Hyde Park
Doylestown PA 18901

S-59D

| | | | | | | |
|---|---|---|---|---|---|---|
| 07807 | BNA Water Extraction | SW-846 3510C | 1 | 05/08/2005 10:00 | Joseph S Feister | 1 |

*=This limit was used in the evaluation of the final result

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# Analysis Report



**Lancaster Laboratories Sample No. WW 4519604**

**MW1-050605 Grab Water Sample**
**SUN: Philadelphia Refinery AOI-4**

Collected:05/06/2005 11:20 by MBS

Account Number: 10132

Submitted: 05/06/2005 18:40
Reported: 05/17/2005 at 16:24
Discard: 06/17/2005

Langan
500 Hyde Park
Doylestown PA 18901

PRM01

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Limit of Quantitation* | As Received Method Detection Limit | Units | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 06035 | Lead | 7439-92-1 | < 0.0010 | 0.0010 | 0.00021 | mg/l | 1 |
| 07879 | EDB in Wastewater | | | | | | |
| 01087 | Ethylene dibromide | 106-93-4 | < 0.028 | 0.028 | 0.0093 | ug/l | 1 |
| 07805 | PAHs in Water by GC/MS | | | | | | |
| 03947 | Naphthalene | 91-20-3 | 32. | 10. | 1. | ug/l | 1 |
| 03956 | Fluorene | 86-73-7 | < 10. | 10. | 1. | ug/l | 1 |
| 03963 | Phenanthrene | 85-01-8 | < 10. | 10. | 1. | ug/l | 1 |
| 03967 | Pyrene | 129-00-0 | < 10. | 10. | 1. | ug/l | 1 |
| 03971 | Chrysene | 218-01-9 | < 10. | 10. | 1. | ug/l | 1 |
| 02302 | UST-Waters by 8260B | | | | | | |
| 02010 | Methyl Tertiary Butyl Ether | 1634-04-4 | < 5. | 5. | 0.5 | ug/l | 1 |
| 05401 | Benzene | 71-43-2 | 100. | 5. | 0.5 | ug/l | 1 |
| 05402 | 1,2-Dichloroethane | 107-06-2 | < 5. | 5. | 1. | ug/l | 1 |
| 05407 | Toluene | 108-88-3 | 10. | 5. | 0.7 | ug/l | 1 |
| 05415 | Ethylbenzene | 100-41-4 | 19. | 5. | 0.8 | ug/l | 1 |
| 05420 | Isopropylbenzene | 98-82-8 | 10. | 5. | 1. | ug/l | 1 |
| 06310 | Xylene (Total) | 1330-20-7 | 27. | 5. | 0.8 | ug/l | 1 |

Commonwealth of Pennsylvania Lab Certification No. 36-037
This sample was filtered in the lab for dissolved metals.
Trip blank vials were not received by the laboratory for this sample group.

## Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|
| 06035 | Lead | SW-846 6020 | 1 | 05/13/2005 00:49 | David K Beck | 1 |
| 07879 | EDB in Wastewater | SW-846 8011 | 1 | 05/10/2005 11:09 | James H Place | 1 |
| 07805 | PAHs in Water by GC/MS | SW-846 8270C | 1 | 05/10/2005 12:54 | Joseph M Gambler | 1 |
| 02302 | UST-Waters by 8260B | SW-846 8260B | 1 | 05/11/2005 11:52 | Andrea D Moore | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | 05/11/2005 11:52 | Andrea D Moore | n.a. |
| 06050 | ICP/MS SW-846 Water | SW-846 3010A Mod. | 1 | 05/10/2005 18:15 | James L Mertz | 1 |
| 07786 | EDB Extraction | SW-846 8011 | 1 | 05/09/2005 12:10 | Darin P Wagner | 1 |

*=This limit was used in the evaluation of the final result

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# Analysis Report



**Lancaster Laboratories Sample No. WW 4519604**

**MW1-050605 Grab Water Sample**
**SUN: Philadelphia Refinery AOI-4**

Collected:05/06/2005 11:20 by MBS

Account Number: 10132

Submitted: 05/06/2005 18:40
Reported: 05/17/2005 at 16:24
Discard: 06/17/2005

Langan
500 Hyde Park
Doylestown PA 18901

PRM01

| | | | | | | |
|---|---|---|---|---|---|---|
| 07807 | BNA Water Extraction | SW-846 3510C | 1 | 05/08/2005 10:00 | Joseph S Feister | 1 |

*=This limit was used in the evaluation of the final result

Lancaster Laboratories

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# Analysis Report



**Lancaster Laboratories Sample No. WW 4519605**

**MW4-050605 Grab Water Sample**
**SUN: Philadelphia Refinery AOI-4**

Collected:05/06/2005 11:40 by MBS

Account Number: 10132

Submitted: 05/06/2005 18:40
Reported: 05/17/2005 at 16:24
Discard: 06/17/2005

Langan
500 Hyde Park
Doylestown PA 18901

PRM04

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Limit of Quantitation* | As Received Method Detection Limit | Units | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 06035 | Lead | 7439-92-1 | < 0.0010 | 0.0010 | 0.00021 | mg/l | 1 |
| 07879 | EDB in Wastewater | | | | | | |
| 01087 | Ethylene dibromide | 106-93-4 | < 0.028 | 0.028 | 0.0094 | ug/l | 1 |
| 07805 | PAHs in Water by GC/MS | | | | | | |
| 03947 | Naphthalene | 91-20-3 | < 10. | 10. | 1. | ug/l | 1 |
| 03956 | Fluorene | 86-73-7 | < 10. | 10. | 1. | ug/l | 1 |
| 03963 | Phenanthrene | 85-01-8 | < 10. | 10. | 1. | ug/l | 1 |
| 03967 | Pyrene | 129-00-0 | < 10. | 10. | 1. | ug/l | 1 |
| 03971 | Chrysene | 218-01-9 | < 10. | 10. | 1. | ug/l | 1 |
| 02302 | UST-Waters by 8260B | | | | | | |
| 02010 | Methyl Tertiary Butyl Ether | 1634-04-4 | < 5. | 5. | 0.5 | ug/l | 1 |
| 05401 | Benzene | 71-43-2 | < 5. | 5. | 0.5 | ug/l | 1 |
| 05402 | 1,2-Dichloroethane | 107-06-2 | < 5. | 5. | 1. | ug/l | 1 |
| 05407 | Toluene | 108-88-3 | < 5. | 5. | 0.7 | ug/l | 1 |
| 05415 | Ethylbenzene | 100-41-4 | < 5. | 5. | 0.8 | ug/l | 1 |
| 05420 | Isopropylbenzene | 98-82-8 | < 5. | 5. | 1. | ug/l | 1 |
| 06310 | Xylene (Total) | 1330-20-7 | < 5. | 5. | 0.8 | ug/l | 1 |

Commonwealth of Pennsylvania Lab Certification No. 36-037
This sample was filtered in the lab for dissolved metals.
Trip blank vials were not received by the laboratory for this sample group.

## Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|
| 06035 | Lead | SW-846 6020 | 1 | 05/13/2005 00:53 | David K Beck | 1 |
| 07879 | EDB in Wastewater | SW-846 8011 | 1 | 05/10/2005 11:38 | James H Place | 1 |
| 07805 | PAHs in Water by GC/MS | SW-846 8270C | 1 | 05/10/2005 13:46 | Joseph M Gambler | 1 |
| 02302 | UST-Waters by 8260B | SW-846 8260B | 1 | 05/11/2005 12:17 | Andrea D Moore | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | 05/11/2005 12:17 | Andrea D Moore | n.a. |
| 06050 | ICP/MS SW-846 Water | SW-846 3010A Mod. | 1 | 05/10/2005 18:15 | James L Mertz | 1 |
| 07786 | EDB Extraction | SW-846 8011 | 1 | 05/09/2005 12:10 | Darin P Wagner | 1 |

*=This limit was used in the evaluation of the final result

Lancaster Laboratories

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# Analysis Report



**Lancaster Laboratories Sample No. WW 4519605**

**MW4-050605 Grab Water Sample**
**SUN: Philadelphia Refinery AOI-4**

Collected:05/06/2005 11:40 by MBS

Account Number: 10132

Submitted: 05/06/2005 18:40
Reported: 05/17/2005 at 16:24
Discard: 06/17/2005

Langan
500 Hyde Park
Doylestown PA 18901

PRM04

| | | | | | | |
|---|---|---|---|---|---|---|
| 07807 | BNA Water Extraction | SW-846 3510C | 1 | 05/08/2005 10:00 | Joseph S Feister | 1 |

*=This limit was used in the evaluation of the final result

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

# Analysis Report



## Quality Control Summary

Client Name: Langan Group Number: 942526
Reported: 05/17/05 at 04:24 PM

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

### Laboratory Compliance Quality Control

| Analysis Name | Blank Result | Blank LOQ** | Blank MDL | Report Units | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| Batch number: 05126WAH026 | Sample number(s): 4519602-4519605 | | | | | | | | |
| Naphthalene | < 10. | 10. | 1. | ug/l | 80 | 83 | 58-108 | 3 | 30 |
| Fluorene | < 10. | 10. | 1. | ug/l | 87 | 91 | 61-116 | 4 | 30 |
| Phenanthrene | < 10. | 10. | 1. | ug/l | 96 | 97 | 68-111 | 1 | 30 |
| Pyrene | < 10. | 10. | 1. | ug/l | 98 | 98 | 68-114 | 0 | 30 |
| Chrysene | < 10. | 10. | 1. | ug/l | 93 | 93 | 70-111 | 0 | 30 |
| Batch number: 051280001A | Sample number(s): 4519602-4519605 | | | | | | | | |
| Ethylene dibromide | < 0.030 | 0.030 | 0.010 | ug/l | 100 | 100 | 60-140 | 0 | 20 |
| Batch number: 051306050001A | Sample number(s): 4519602-4519605 | | | | | | | | |
| Lead | < 0.0010 | 0.0010 | 0.00021 | mg/l | 105 | | 80-120 | | |
| Batch number: T051311AA | Sample number(s): 4519602-4519605 | | | | | | | | |
| Methyl Tertiary Butyl Ether | < 5. | 5. | 0.5 | ug/l | 99 | 98 | 77-127 | 0 | 30 |
| Benzene | < 5. | 5. | 0.5 | ug/l | 111 | 108 | 85-117 | 2 | 30 |
| 1,2-Dichloroethane | < 5. | 5. | 1. | ug/l | 113 | 111 | 77-132 | 1 | 30 |
| Toluene | < 5. | 5. | 0.7 | ug/l | 101 | 101 | 85-115 | 0 | 30 |
| Ethylbenzene | < 5. | 5. | 0.8 | ug/l | 91 | 90 | 82-119 | 1 | 30 |
| Isopropylbenzene | < 5. | 5. | 1. | ug/l | 91 | 90 | 80-120 | 1 | 30 |
| Xylene (Total) | < 5. | 5. | 0.8 | ug/l | 92 | 91 | 83-113 | 1 | 30 |

### Sample Matrix Quality Control

| Analysis Name | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD MAX | BKG Conc | DUP Conc | DUP RPD | Dup RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| Batch number: 051280001A | Sample number(s): 4519602-4519605 | | | | | | | | |
| Ethylene dibromide | 87 | | 65-135 | | | < 0.028 | < 0.028 | 200* (1) | 30 |
| Batch number: 051306050001A | Sample number(s): 4519602-4519605 | | | | | | | | |
| Lead | 106 | 108 | 75-125 | 2 | 20 | < 0.0010 | < 0.0010 | 10 (1) | 20 |
| Batch number: T051311AA | Sample number(s): 4519602-4519605 | | | | | | | | |
| Methyl Tertiary Butyl Ether | 103 | | 69-134 | | | | | | |
| Benzene | 119 | | 83-128 | | | | | | |
| 1,2-Dichloroethane | 119 | | 73-136 | | | | | | |
| Toluene | 108 | | 83-127 | | | | | | |
| Ethylbenzene | 98 | | 82-129 | | | | | | |
| Isopropylbenzene | 97 | | 81-130 | | | | | | |
| Xylene (Total) | 98 | | 82-130 | | | | | | |

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The background result was more than four times the spike added.

## Quality Control Summary

Client Name: Langan Group Number: 942526
Reported: 05/17/05 at 04:24 PM

### Sample Matrix Quality Control

| Analysis Name | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD MAX | BKG Conc | DUP Conc | DUP RPD | Dup RPD Max |
|---|---|---|---|---|---|---|---|---|---|

### Surrogate Quality Control

Analysis Name: PAHs in Water by GC/MS
Batch number: 05126WAH026

| | Nitrobenzene-d5 | 2-Fluorobiphenyl | Terphenyl-d14 |
|---|---|---|---|
| 4519602 | 96 | 91 | 106 |
| 4519603 | 84 | 83 | 79 |
| 4519604 | 91 | 89 | 111 |
| 4519605 | 90 | 88 | 106 |
| Blank | 95 | 83 | 114 |
| LCS | 92 | 87 | 114 |
| LCSD | 93 | 88 | 116 |
| Limits: | 51-123 | 64-112 | 53-135 |

Analysis Name: EDB in Wastewater
Batch number: 051280001A

| | 1,1,2,2-Tetrachloroethane |
|---|---|
| 4519602 | 101 |
| 4519603 | 91 |
| 4519604 | 108 |
| 4519605 | 100 |
| Blank | 104 |
| DUP | 104 |
| LCS | 106 |
| LCSD | 104 |
| MS | 119 |
| Limits: | 52-120 |

Analysis Name: UST-Waters by 8260B
Batch number: T051311AA

| | Dibromofluoromethane | 1,2-Dichloroethane-d4 | Toluene-d8 | 4-Bromofluorobenzene |
|---|---|---|---|---|
| 4519602 | 99 | 91 | 89 | 98 |
| 4519603 | 101 | 89 | 90 | 94 |
| 4519604 | 101 | 89 | 90 | 98 |
| 4519605 | 99 | 88 | 89 | 95 |
| Blank | 98 | 89 | 88 | 93 |
| LCS | 97 | 88 | 91 | 97 |
| LCSD | 97 | 89 | 91 | 97 |
| MS | 99 | 89 | 91 | 96 |
| Limits: | 81-120 | 82-112 | 85-112 | 83-113 |

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The background result was more than four times the spike added.

# Quality Control Summary

Client Name: Langan Group Number: 942526
Reported: 05/17/05 at 04:24 PM

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The background result was more than four times the spike added.

# Analysis Request / Environmental Services Chain of Custody

Lancaster Laboratories
Where quality is a science.

For Lancaster Laboratories use only
Acct. # 10132 Group# 942526 Sample # 4519602-05

**COC #** 0081525

Please print. Instructions on reverse side correspond with circled numbers. Cooler temp 3.3°C

(1)
Client: Sun-Aquaterra / Langan Acct. #:
Project Name/#: Sun-Philadelphia Refinery AOE-4 PWSID #:
Project Manager: K. Martin / J. Hanna P.O.#:
Sampler: M. Brad Spancake Quote #:
Name of state where samples were collected: PA

| (2) Sample Identification | Date Collected | Time Collected | (3) # of Containers | Matrix: Soil | Water | Other | Total # of Containers | Analyses Requested: 8260 BTEX, MTBE, Cumene, EDC | 8011 EDB | 6020 Dissolved Pb | 8270 Fluorene, Phenanthrene, Pyrene, Chrysene, Naphthalene | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S102-050605 | 5/6/05 | 1000 | X | | X | | | | | | | Dissolved Pb samples are unfiltered / unpreserved |
| S59D-050605 | | 1030 | X | | X | | | | | | | |
| SMW1-050605 | | 1120 | X | | X | | | | | | | |
| MW4-050605 | ↓ | 1140 | X | | X | | | | | | | |

(4) Matrix: ☐ Potable ☐ Non-Potable

(5) Analyses Requested

(6) For Lab Use Only
FSC:
SCR #:

(7) **Turnaround Time Requested** (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: 5 day TAT
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

(8) **Data Package Options** (please circle if required)
QC Summary
Type I (Tier I)
Type II (Tier II)
Type III (NJ Red. Del.)
Type IV (CLP)
Type VI (Raw Data)
GLP
Other
SDG Complete? Yes No
Site-specific QC required? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal Chain of Custody required? Yes No

(9)

| Relinquished by: | Date | Time | Received by: | Date | Time |
|---|---|---|---|---|---|
| M. Brad Spancake | 5/6/05 | 1700 | | 5/6/05 | 1700 |
| | 5/6/05 | 1840 | | | |
| | | | | | |
| | | | | | |
| | | | Jessica Bair | 5/6/05 | 1840 |

Lancaster Laboratories, Inc., 2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 (717) 656-2300
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.

2102 Rev. 10/27/02

Lancaster Laboratories
2425 New Holland Pike • Lancaster, PA 17601

# Explanation of Symbols and Abbreviations

*The following defines common symbols and abbreviations used in reporting technical data:*

| | | | |
|---|---|---|---|
| **N.D.** | none detected | **BMQL** | Below Minimum Quantitation Level |
| **TNTC** | Too Numerous To Count | **MPN** | Most Probable Number |
| **IU** | International Units | **CP Units** | cobalt-chloroplatinate units |
| **umhos/cm** | micromhos/cm | **NTU** | nephelometric turbidity units |
| **C** | degrees Celsius | **F** | degrees Fahrenheit |
| **meq** | milliequivalents | **lb.** | pound(s) |
| **g** | gram(s) | **kg** | kilogram(s) |
| **ug** | microgram(s) | **mg** | milligram(s) |
| **ml** | milliliter(s) | **l** | liter(s) |
| **m3** | cubic meter(s) | **ul** | microliter(s) |

**<** less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

**>** greater than

**J** estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

**ppm** parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

**ppb** parts per billion

**Dry weight basis** Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

*U.S. EPA CLP Data Qualifiers:*

**Organic Qualifiers**

| | |
|---|---|
| **A** | TIC is a possible aldol-condensation product |
| **B** | Analyte was also detected in the blank |
| **C** | Pesticide result confirmed by GC/MS |
| **D** | Compound quantitated on a diluted sample |
| **E** | Concentration exceeds the calibration range of the instrument |
| **N** | Presumptive evidence of a compound (TICs only) |
| **P** | Concentration difference between primary and confirmation columns >25% |
| **U** | Compound was not detected |
| **X,Y,Z** | Defined in case narrative |

**Inorganic Qualifiers**

| | |
|---|---|
| **B** | Value is <CRDL, but ≥IDL |
| **E** | Estimated due to interference |
| **M** | Duplicate injection precision not met |
| **N** | Spike sample not within control limits |
| **S** | Method of standard additions (MSA) used for calculation |
| **U** | Compound was not detected |
| **W** | Post digestion spike out of control limits |
| ***** | Duplicate analysis not within control limits |
| **+** | Correlation coefficient for MSA <0.995 |

Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

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